National Transportation Safety Board
Washington, DC 20594

Brief of Accident

Adopted 02/22/2000

ANC98MA008
File No. 1877 | 11/08/1997 | BARROW, AK | Aircraft Reg No. N750GC | Time (Local): 08:08 AST

Make/Model:	Cessna / 208B
Engine Make/Model:	P&W / PT6A-114
Aircraft Damage:	Destroyed
Number of Engines:	1
Operating Certificate(s):	Commuter Air Carrier; On-demand Air Taxi
Name of Carrier:	HAGELAND AVIATION SERVICES INC
Type of Flight Operation:	Scheduled; Domestic; Passenger/Cargo
Reg. Flight Conducted Under:	Part 135: Air Taxi & Commuter

	Fatal	Serious	Minor/None
Crew	1	0	0
Pass	7	0	0

Last Depart. Point:	Same as Accident/Incident Location
Destination:	WAINWRIGHT , AK
Airport Proximity:	Off Airport/Airstrip

Condition of Light:	Night/Dark
Weather Info Src:	Weather Observation Facility
Basic Weather:	Visual Conditions
Lowest Ceiling:	None
Visibility:	7.00 SM
Wind Dir/Speed:	170 / 008 Kts
Temperature (°C):	12
Obstr to Vision:	None
Precipitation:	None

Pilot-in-Command Age: 40

Certificate(s)/Rating(s)
Airline Transport; Commercial; Foreign; Multi-engine Land; Single-engine Land
Instrument Ratings
Airplane

Flight Time (Hours)

Total All Aircraft:	3500
Last 90 Days:	Unk/Nr
Total Make/Model:	200
Total Instrument Time:	100

The pilot, who was also the station manager, arrived at the airport earlier than other company employees to prepare for a scheduled commuter flight, transporting seven passengers and cargo to another village during hours of arctic, predawn darkness. Heavy frost was described on vehicles and airplanes the morning of the accident, and the lineman who serviced the airplane described a thin glaze of ice on the upper surface of the left wing. The pilot was not observed deicing the airplane prior to flight, and was described by the other employees as in a hurry to depart on time. The pilot directed the lineman to place fuel in the left wing only, which resulted in a fuel imbalance between 450 and 991 pounds (left wing heavy). The first turn after takeoff was into the heavy left wing. The airplane was observed climbing past the end of the runway, and descending vertically into the water. No preimpact mechanical anomalies were found with the airplane or powerplant. The aileron trim indicator was found in the full right wing down position. Postaccident flight tests with left wing heavy lateral fuel imbalances, disclosed that approximately one-half of right wing down aileron control deflection was used to maintain level flight, thus leaving only one-half right wing down aileron control efficacy. Research has shown that frost on airfoils can result in reduced stall angles of attack (often below that required to activate stall warning devices), increases in stall speeds between 20% and 40%, asymmetric stalls resulting in large rolling moments, and differing stall angles of attack for wings with upward and downward deflected ailerons (as when recovering from turns).

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Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) FLUID,FUEL - ASYMMETRICAL
2. (F) REFUELING - IMPROPER - PILOT IN COMMAND
3. (C) AIRCRAFT WEIGHT AND BALANCE - DISREGARDED - PILOT IN COMMAND
4. (F) AIRCRAFT CONTROL - REDUCED
5. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND
6. (C) ICE/FROST REMOVAL FROM AIRCRAFT - IMPROPER - PILOT IN COMMAND
7. (F) SELF-INDUCED PRESSURE - PILOT IN COMMAND
8. (F) INADEQUATE SURVEILLANCE OF OPERATION - COMPANY/OPERATOR MGMT

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings Legend: (C) = Cause, (F) = Factor

The National Transportation Safety Board determines the probable cause(s) of this accident as follows.
The pilot's disregard for lateral fuel loading limits, his improper removal of frost prior to takeoff, and the resulting inadvertent stall/spin. Factors involved in this accident were the improper asymmetrical fuel loading which reduced lateral aircraft control, the self-induced pressure to takeoff on time by the pilot, and inadequate surveillance of the company operations by company management.